had a chance to study, in which the secondary growths disappeared after the removal of the primary one, and the autopsy revealed the scars. The patient died, with symptoms resembling uremic coma, very probably from a cerebral lesion, after eighteen months of apparent health succeeding the operation. The examination of the head itself was not permitted. Other similar or somewhat similar cases of other surgeons are also referred to. Just how the removal of the primary growth thus influences the metastases is hard to say, but Wells suggests, as possible, a sort of autoimmunization from cancer substance forced into the circulation by the operative procedure. As supporting this view he adduces a suggestive case described by Mackey. The condtions under which metastases are formed is also another source of evidence of the resistance of the body to cancer. The least resistant organs are the ones that are affected. Just now our chief hope lies in experimental work with transplanted tumors in animals, in which, besides a natural congenital immunity to some extent, there is sometimes produced a varying degree of acquired immunity, both active and passive, the first more successfully than the last. There is, however, some evidence that the blood of animals spontaneously recovering from tumors may render animals more or less resistant and even cause healing of tumors in inoculated animals. All these accumulated observations during the few recent years of cancer research give much hope that eventually we may do something for the cancer patient besides radical operation.

NOTES ON RECENT THERAPY.

Hirschfeld (1) emphasizes the importance for therapy, in diseases of the blood and the blood forming organs, of our present views as to the regeneration of the blood in normal and pathological conditions. At present, for example, there is no solid ground for the theory that increase in the size of the liver and the spleen, and multiplication of the leucocytes, in myelogenous leukemia, should be considered as reparative processes, and the same is true for multiplication of lymphocytes in the lymphatic form of leukemia. Large lymph node tumors, which do not yield to other measures, may properly be the subject of surgical treatment, unless the tendency to hemorrhage is strong. In pernicious anemia we consider the changes in the bone marrow as an effort at repair, and suppose that the newly formed cells are subjected to injurious influences after they have reached the general circulation. But if we regard the marrow as the site of the pathological process, the place where the injurious influences act, then it is reasonable to treat the case by the X-ray applied to the bones. This may affect the toxins there advantageously, but, on the other hand, there is a risk of preventing the regeneration of blood cells. The increase in the size of the liver should not be combated, for this is almost certainly reparative, both the liver and the spleen tending to revert to their embryonic function of blood cell formation.

The action of the X-ray upon the blood and the bone marrow has been studied by Aubertin and Beaujard (2). The effect upon lymphoid tissue is well enough understood, but what occurs in the bone marrow and the blood cells is still unknown, chiefly for want of a method of determining the dosage. After exposing animals to the X-ray treatment of moderate therapeutic dosage (9 guinea pigs), and killing them at periods of two hours to twenty-three days afterward, they determined that the effect of the rays is very different according as it is applied to lymphoid tissue or the marrow. Single treatments caused long persistent blood changes, at first a transitory increase in the leucocytes and then a leucopenia interrupted by periods of leucocytosis. The changes were not due to increased destruction of white cells in the spleen, and they occur in spite of hyperlasia in the marrow. Many degenerated polynuclears were seen in all the smears, but sometimes the eosinophiles were increased.

While the spleen is the main graveyard of blood cells, the opinion is gaining ground that in pernicious anemia there is a destruction of the cells while they circulate in the vessels, from the action of toxic substances which almost always are derived from the alimentary tract; this is quite clear in cases due to the presence of bothriocephalus, for the parasite furnishes a toxic lecithid, but in other cases there is very frequently an atrophic gastritis with achylia, or there may be a cancerous growth; resorption of toxic lecithids or lipoids, which closely resemble the hemolytic lecithid of cobra venom, which will produce anemia in the experimental animal, explains not only the blood changes but also the well established fact that thoro cleansing of the alimentary tract is often sufficient to bring about improvement, even cure. Reicher finds that feeding cholesterin will either reduce or wholly prevent the formation of such toxins. He gives a three per cent solution of cholesterin in olive oil, and in three cases observed distinct improvement; a fourth did not respond, but was improved by atoxyl. He advises the cholesterin treatment, not only in pernicious anemia but also in paroxysmal hemoglobinurio and eclampsia. (3)

Martelli (4) has published a study of the comparative action of ether and chloroform upon the oxygen of the blood, both in vitro and upon dogs, and finds that in the test tube the action of chloroform is more pronounced and rapid, increasing the free oxygen in the blood by destruction of the red cells, but in the circulating blood of the living animal chloroform decreases the oxygen while ether increases it. This may have some practical importance for surgical anesthesia in the light of Zurbesth's recent paper (5). It has long been known in the laboratory that if the extremities of a rabbit are tied off and choloroform administered, far less of the anesthetic is required to produce profound narcosis, the animal wakes more rapidly and there are fewer secondary effects. He has made practical application of this fact in anesthetizing human subjects, and finds not only that less anesthetic is needed and recovery from it is more rapid, but that in case of need, the blood stored up in the thighs and legs, rich in CO_2, may be used to dilute the chloroform circulating in the rest of the blood. This is certainly a quicker and safer method of resuscitating the patient, that is, simply releasing the thigh ligatures, than saline or direct transfusion.

Mendel (6) has employed medication directly into the veins in many cases with good results, asserting that the fear of this procedure on the part of many physicians is not justified, for if carefully done there is no more danger than with hypodermics and the effects last longer, contrary to what is generally believed. The drugs used must not tend to cause coagulation of the blood or destruction of the cells or interference with the function of the lining endothelia. Hetol has long been given intravenously in tuberculosis, and while it may not do much good it certainly has not proved harmful, and Crede has used his colloid silver in the same way. Atoxyl may be used in as high a strength as 15 per cent. in various blood conditions, enlargements of the lymph nodes, skin diseases, Grave's disease and pseudoleukemia. In tuberculosis the combination of tuberculin and arsenic is often of value. Sodium salicylate, 20 per cent with caffein, is valuable in rheumatism without fever. Digitalone and digalen often are irritant and strophanthin may have bad secondary effects intravenously. Adrenalin salt solution, in the proportion of one liter of physiological salt solution with 8 minims of 1 per cent. adrenalin, has proved a life saver in loss of cardiac power and falling blood pressure in septic processes, and quinine has been of use in syphilis, though potassium iodid and atoxyl are not. In hemoptysis Vanderhelden uses 3 to 5 c. c.

of 10 per cent sodium chlorid solution, which increases the coagulability of the blood.

Flesch (7) advocates the intravenous administration of strophanttin in degeneration of the myocardium, claiming a prompt effect when other cardiacs and diuretics fail. It is essential to introduce it accurately into the vein, for improperly given it causes much local pain and the constitutional effect may not develop. He gives 1 mg. and waits two or three days before repeating it.

Liebermeister (8) formulates the indications for intravenous use of strophanthin in this way; absolute indications are serious heart and kidney conditions where immediate aid is required, relative indications include conditions where digitalis is not tolerated by the stomach or is without effect, and where reliable preparations of digitalis cannot be obtained and yet a digitalis effect is demanded; in the first case he advises from 0.7 mg. to 1 mg., and in the second from 0.5 to 0.7 mg. Cumulative and toxic effects are avoided by giving not over 1.5 mg. in 48 hours, and not within four days after digitalis. Such intravenous use of strophanthin is well supplemented by theocin, diuretin or caffein by the mouth. Bradycardia is a contraindication. Hypodermic doses of strophanthin are liable to cause either abscesses or necrosis.

Strophanthin is given by Henzing (9) in still another way. He calls attention to the absorbing power of the air passages as a neglected route for medication, and instances two cases of weak heart which responded remarkably to strophanthin inhalations.

The organic preparations of iron were introduced by Bunge, and Schmiedeberger obtained one from the livers of swine and then made it synthetically, and this has been introduced under the name ferratin. Two late combinations of this with iodin and arsenic are known as iodo-ferratose and arsenic-ferratose, and they have proved particularly useful in anemia due to malaria and tuberculosis. Contrary to the general opinion that iron is not indicated in tuberculosis, Apostolides (10) has employed both these combinations in the early stages with good results, and Moritz has had the same experience. The arsenic ferratose has a beneficial effect in the obstinate eczemas which occur in chlorosis and other anemias. Hemæus (11) employs arsenic ferratose in children with tuberculosis and chorea, giving a tablet after meals and keeping the patient in bed from four to six weeks. The hemoglobin is increased, the entire blood picture improves, the appetite is better and there are no disturbances of digestion or irritative symptoms.

A valuable addition to the serum treatment of diphtheria is the use of a spray of pyocyanase. Gross and Ban (12) employ this spray from two to six times daily and state that the membrane loosens more rapidly than with serum alone, the fetor disappears and there is rapid improvement in the general condition. Danielewicz (13) reports nine cases of severe angina in eight of which the membrane disappeared by the second day, the temperature was normal by the third day, and in two cases phlegmon of the tonsils was cured without operation or ill effects; he advises its use every two hours.

Among the specific preparations for the treatment of tuberculosis, probably the best is purified tuberculin, tuberculinum purum, made from bacilli of human origin with all fats, waxes and other substances extracted. Gabrilowitsch (14) claims that larger doses may be used and the increase in the dose more rapidly pushed, and that it seldom causes reactions. With circumscribed lung foci about twenty injections are sufficient. At first there is an apparent aggravation of the local process and then improvement is rapid. In his material the bacilli disappeared from the sputa in 50 per cent, rales cleared up in 75 per cent, the temperature became normal during treatment in 31 per cent. and after treatment in 62 per cent, the patients increased in weight in 96 per cent, the gain varying from one to six kilos.

The dose varies with the prevailing conditions, but from 0.01 mg. at the beginning it may be pushed to 200 mg.

Freund (15) has employed the X-ray with good results in tubercular osteoarthritis, especially of the smaller joints, claiming 55 per cent of cures and 22 per cent improved. He says that a marked erythema must be produced and keeps up the treatment for some time even after .apparent healing.

Among old friends in a new form may be mentioned pantopon, a study of which has lately been published by Sahli (16). This represents the entire alkaloidal strength of opium as an acid tartaric acid salt, and contains 89.77 per cent of total alkaloids as compared with a total for HCI salts of 90.0 per cent. It includes narcotin, but since a simple watery solution becomes opaque from precipitation of the narcotin, it is better to make a solution with glycerin, 25 parts to 75 parts of water, which keeps well. One gram is equivalent to 5 gm. opium, or 0.5 gm. morphine with 0.4 gm. of other alkaloids. The salt is brown and makes a brownish solution, faintly acid to litmus, neutral to congo, it may be sterilized by boiling without change and injections are painless. For ordinary pain and dyspnea 0.02 gm. usually suffices, best given in two per cent solution, but for delirium tremens twice this dose is required. Internally it may be given in pills of 1-2 centigrams, and it is not more constipating than morphine. So far all reports of the use of pantopon are favorable.

Among the best of the newer hypnotics is bromural, a mono-brom-iso-valerianate of urea. It is not injurious even in high dosage, produces sleep remarkably like the physiological, undisturbed by dreams, and with no unpleasant sensations on waking. It is not so serviceable during acute infections, but is particularly valuable in convalescence. It relieves moderate pain,. not severe and lancinating seizures, quiets epilepsy and mental excitement, gives good results in nervous insomnia, is almost without narcotic action and free from cumulative effects, as pointed out by Remy (17). Grendi (18) asserts that it does not cause bromism on long continued use, and produces no change in the blood pressure, the composition of the blood, or metabolic processes. His smallest dose was 0.06 gm., and his largest 1.20 gm. He also emphasizes the physiological sleep and the absence of ill effects in single or continued dosage. Ubaldo (19) considers bromural better than the bromides for nervous excitement and insomnia, giving it in 0.3 gm. to 0.6 gm. doses, and for nursing babies in 0.1 gm., and he also observes that it has some effect in controlling excessive sweating.

One of the great therapeutic needs is a systemic cathartic, as efficacious in its way as apomorphin in causing emesis. Nicolini (20) has been studying this question, and reports a series of drugs which cause purging when injected hypodermatically. One of the most powerful of these is apocodein chlorid, in doses of 0.4 gm; a similar effect is produced by aloin, 4-8 centigrams of a 10 per cent. solution, cathartinic acid from senna, and podophyllotoxin from podophyllum, and eumydrin. While no one of these answers all requirements, yet the author's experiments demonstrated the local and general safety of their employment, and led him to hope that others may aid in the search for the desired drug.

1. Hirschfeld, Therap. d. Gegenwart, 1908, No. 8.

2. Aubertin and Beaujard, Arch. d. med. experim, 1908, No. 2.

3. Reicher, Berl, klin. Woch., 1908, No. 41, 42.

4. Martelli, Bull. d. sci. med., 1908, July.

5. Zurberth, Munch. med. Woch., 1908, No. 46.

6. Mendel, Berl. klin. Woch., 1908, No. 49, 50.

7. Flesch, Wien, klin. Woch., 1908, No. 46.

8. Liebermeister, Med. Klinik, 1908, VIII, supplement.

9. Henzing, Klin. therap. Woch., 1908, No. 31.
10. Apostolides, Folia therapeut. 1908, No. 3.
11. Humaeus, Therapeut. Monatsheft, 1908 No. 9.
12. Gross und Ban, Munch. med. Woch., 1909, No. 4.
13. Danielewicz, Inaug. Dissert., Bonn, 1908.
14. Gabriolwitsch, Zeit. f. Tuberk., 1908, Heft. 3.
15. Freund, Wien. med. Woch., 1908, No. 43, 45.
16. Sahli, Therapeut, Monatsheft, 1909, No. 1.
17. Remy, Province med., 21 st year, No. 29.
18. Grendi, Gazz. degli osped. 1908, No. 95.
19. Ubaldo, Gazz., degli osped., 1908, No. 107.
20. Nicolini, Gazz., degli osped., 1908, No. 4.

A. E. THAYER.

Jacksonville, Fla.

SURGERY

PITFALLS IN URINARY DIAGNOSIS.

This was the subject taken up by Dr. Bransford Lewis, of St. Louis, in the annual address before the Urologic Section of the Ohio State Medical Society, at Cincinnati, May 6, 1909. The author first called attention to enthralling interest of diagnosis, as connected with urinary affections, and its supreme importance, as compared with other features of the study and practice. Shortcomings in diagnosis frequently allow human beings to suffer for years that might, with diagnosis made clear, be healthy and useful citizens all of that time. Cases were cited in illustration. They also illustrated a habit to which some of the profession were addicted, that is skipping a real diagnosis entirely and jumping, pellmell, into the treatment, so-called, of a case; treatment which consists of giving medicines for the urinary symptoms presenting; which, if effective at all accomplishes the greatest harm by palliating and masking the evidences being offered by nature as signals of distress, that are the most valuable means possible for directing attention to the afflicted organ. The "beautiful specimens" of dilated ureters, sacculated, destroyed kidneys should be looked upon as post mortem monuments of such exalted ignominy. They are usually the result of the withholding of surgery through total disregard of diagnosis.

It was conceded that this was partly due to the relative inaccessibility of the urinary organs, as compared with the others of the body. But, aside from the fact that obstacles do not justify lax endeavor in medical work, it was pointed out that the means for investigating precisely and comprehensively the whole urinary tract were multifarious, exact and reliable; and the responsibility of having them used was assumed by every physician who accepted a patient for treatment, whether he himself were capable of using them or not.

The relative importance of the several features upon which a diagnosis must rest, the history, symptomatology, semeiology, physical examination, etc., were taken up and compared, to the distinct advantage of physical examination, for the development of accurate diagnosis. The pitfalls of diagnosis were considered as they related to the several parts of the tract as follows: A., for the urethra; B, Prostrate; C., Seminal vesicles; D., Bladder; E., Ureters; F., Kidneys. The individual steps of physical examination, as advised by the author, were recounted and explained.